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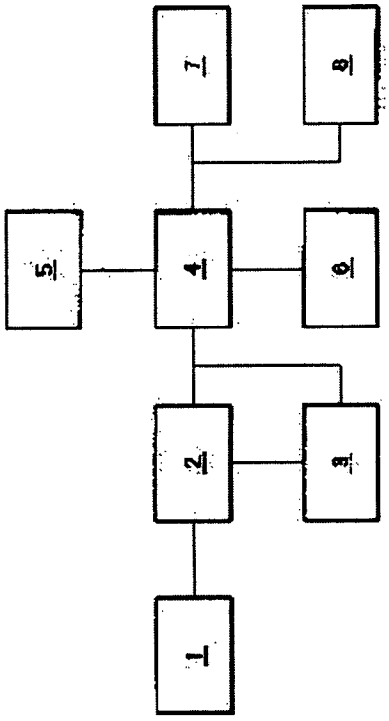
(54) ANALYZING METHOD OF WORKING STATE, ANALYSIS SYSTEM OF WORKING STATE TO EXECUTE THE SAME METHOD AND MANAGING DEVICE OF WORKING STATE USING THE SAME SYSTEM



(57)Abstract:
PROBLEM TO BE SOLVED: To provide an analyzing method of working state by which the working state of an object to be worked is simply and easily analyzed and standard time of operation and standard operation of the object to be worked can be optionally and easily set.
SOLUTION: This managing device is constituted so that that range of an image part which is intended to be analyzed of moving images being reproduced is selected as reproducing a series of moving images to express the working state of the photographed object to be worked at a predetermined variable reproduction speed within the predetermined range, the selected moving image part is registered as a motion element in a series of the moving images, motion analysis data is obtained by analyzing motions of each registered motion element, each motion element is edited on a time bases and the working state of the object to be worked is selectively displayed together with each of edited motion elements and motion analyzed data based on a variable time base.

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CLAIMS

[Claim(s)]
[Claim 1] Reproducing a series of animations showing the working state for [which was photoed] operation with the adjustable reproduction speed within the limits which were able to be decided beforehand Choose the range of the image part which is going to analyze the animation currently reproduced, register the selected animation part as an action element on a series of animations, and while carrying out movement analysis of each registered action element and obtaining movement analysis data Analytical method of the working state characterized by editing each action element on a time-axis, and displaying the working state for operation alternatively with each action element and movement analysis data which were edited based on a variable time shaft.
[Claim 2] the analytical method of the working state according to claim 1 characterized by the edit on the time-axis of each action element including directions and (or) deletion of the unreasonableness in each action element, futility, or unevenness actuation.
[Claim 3] Analytical method of the working state according to claim 1 to which movement analysis is characterized by including calculation of the relative comparison of the working state for [two or more] operation, and the capacity of operation for [each] operation.
[Claim 4] Analytical method of the working state according to claim 1 characterized by the working state for operation being a part of working state [at least] of the equipment used by the production process of goods.
[Claim 5] Analytical method of the working state according to claim 1 characterized by being a part of working state [at least] of the operator to whom the working state for operation is engaged in the production process of goods.
[Claim 6] The reproduction speed setting up function which sets up the reproduction speed of a series of animations showing the working state for [which was photoed] operation, The action-element demarcation function in a series of animations which it is going to analyze to select an image part at least and to demarcate an action element, The action-element classification setting

up function which sets up, the classification, i.e., the activity, of each action element demarcated using the action-element demarcation function, The measurement display function of the time of the action element which measures and displays the time of each action element demarcated using the action-element demarcation function of operation of operation, The action-element edit function which edits the action element based on the analysis result of having carried out movement analysis, about the action element chosen using the action-element classification setting up function, The analysis system of the working state characterized by having the rating value setting up function which a rating value is set [setting up function] up to each analyzed action element, and reproduces each action element.

[Claim 7] the analysis system of the working state according to claim 6 characterized by an action-element edit function including directions and (or) deletion of the unreasonableness in each action element, futility, or unevenness actuation.

[Claim 8] The analysis system of a working state according to claim 6 by which movement analysis is characterized by including calculation of the relative comparison of the working state for [two or more] operation, and the capacity of operation for [each] operation.

[Claim 9] Analytical method of the working state according to claim 6 characterized by constituting so that the working state for operation may be alternatively displayed with the rating value set up with each action element and movement analysis data which were edited.

[Claim 10] The analysis system of the working state according to claim 6 characterized by the working state for operation being a part of working state [at least] of the equipment used by the production process of goods.

[Claim 11] The analysis system of the working state according to claim 6 characterized by being a part of working state [at least] of the operator to whom the working state for operation is engaged in the production process of goods.

[Claim 12] A playback means to reproduce the animation of the working state for operation changed into the data which are photoed and can be processed by computer, A means to set up the reproduction speed of the above-mentioned animation, and a means in a series of animations which it is going to analyze to select an image part at least and to demarcate an action element, A means to set up the activity of each demarcated action element, and a means to measure and display the time of each demarcated action element of operation, A means to edit the action element based on the analysis result of having carried out movement analysis, about the activity of the selected action element, A means to set up a rating value to each analyzed action element, and to reproduce each action element, A means to memorize the data and the action element which are concerned with progress of the editing operation by the edit means, and a result, It has a printing means to print the data and the action element which are concerned with progress of the editing operation by the edit means, and a result. Management equipment of the working state characterized by constituting based on each action element which carried out movement analysis, edited and was obtained so that the simulation of the desired working state can be carried out on a desired variable time shaft.

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DETAILED DESCRIPTION

[Detailed Description of the Invention]
[0001]
[Field of the Invention] This invention relates to the management equipment of the working state which used this system for the analysis system list of the working state which enforces the method of analyzing the working state of the production machine in the production process for operation, or an operator, and this approach.
[0002]
[Description of the Prior Art] Generally, the actuation in a production process and analysis of time amount are known as fundamental technique in production engineering. The motion of an operator included in movement analysis, i.e., an activity, in a production line as the typical example using a stopwatch is observed and analyzed finely, a useless motion is excluded, and there is a method of improving a procedure and combination of operation.
[0003] however -- if a mental and mental pain tends to follow and it is going to obtain exact data for both operator by whom abundant experience and knowledge are needed for enforcing this approach, and data are collected, and observer -- not only using a nerve very much but time amount -- this -- things -- ** Therefore, even if the need and effectiveness of that operation were accepted, this approach was not enough utilized as a practical question.
[0004] Moreover, with the spread of a video camera or picture reproducers, a work content is photoed with a video camera, working-hours measurement is performed using a stopwatch if needed, actuation and analysis of time amount are performed, reproducing the image obtained in this way with picture reproducer, it is based on the analytical data, and the method of improving and guiding a working state, combining it and keeping analytical data is also proposed.
[0005] However, by this approach, in order to perform actuation and analysis of time amount, reproducing the image which might be photoed with the video camera with picture reproducer, repetition actuation of picture reproducers, such as playback and rewinding, is needed, and the more it performs actuation and analysis of time amount finely, the more analysis will take time amount. Moreover, the time amount for every element is measured for actuation and analysis of time amount, the result is written down in a form, or the input to spreadsheet software etc. is needed, and the activity becomes the troublesome thing which requires time amount. Furthermore, since actuation and the analysis result of time amount are kept by a video tape, a record form, the data disk, etc., its management of data is troublesome. Looking for a part seeing from actuation and the analysis result of time amount further again takes time and effort very much. Moreover, by such conventional approach, there is a fault that cut playback, repeat playback, the playback from a setting rating value, etc. cannot perform useless actuation in the work content which should be managed.
[0006]
[Problem(s) to be Solved by the Invention] By the way, a cost competition more international recent years still is intensifying, and it is becoming the time which cannot be survived if the increase in efficiency of management is not further advanced at production works. In such a

situation, in order to establish more effective time management organization, actuation and analysis of time amount are unavoidable. However, by the approach by which the conventional proposal has been made, analysis actuation takes a help and time amount, and since it was troublesome, the approach of it being easy and enforcing easily is demanded.
[0007] Then, this invention solves the above-mentioned trouble of the conventional technique, can analyze the working state for operation simply and easily, and aims at offering the analytical method of the working state which can set up arbitrarily and easily the allowed time of actuation for operation, and standard actuation.
[0008] Another purpose of this invention is to offer analysis SHISUTE for enforcing the above-mentioned analytical method.
[0009] Still more nearly another purpose of this invention is to offer the management equipment of the working state which used above-mentioned analysis analysis SHISUTE.
[0010]
[Means for Solving the Problem] In order to attain the above-mentioned purpose, the analytical method of the working state by this invention Reproducing a series of animations showing the working state for [which was photoed] operation with the adjustable reproduction speed within the limits which were able to be decided beforehand Choose the range of the image part which is going to analyze the animation currently reproduced, register the selected animation part as an action element on a series of animations, and while carrying out movement analysis of each registered action element and obtaining movement analysis data It is characterized by editing each action element on a time-axis, and displaying the working state for operation alternatively with each action element and movement analysis data which were edited based on a variable time shaft.
[0011] in the analytical method of the working state by this invention, the edit on the time-axis of each action element may include directions and (or) deletion of the unreasonableness in each action element, futility, or unevenness actuation preferably. Moreover, movement analysis may include calculation of the relative comparison of the working state for [two or more] operation, and the capacity of operation for [each] operation. Furthermore, in the analytical method of the working state by this invention, the working state for operation may be a part of working state [at least] of the operator engaged in a part of working state [at least] of the equipment used by the production process of goods, or the production process of goods preferably.
[0012] Moreover, the reproduction speed setting up function which sets up the reproduction speed of a series of animations with which the analysis system of the working state of this invention expresses the working state for [which was photoed] operation, The action-element demarcation function in a series of animations which it is going to analyze to select an image part at least and to demarcate an action element, The action-element classification setting up function which sets up, the classification, i.e., the activity, of each action element demarcated using the action-element demarcation function, The measurement display function of the time of the action element which measures and displays the time of each action element demarcated using the action-element demarcation function of operation of operation, The action-element edit function which edits the action element based on the analysis result of having carried out movement analysis, about the action element chosen using the action-element classification setting up function, It is characterized by having the rating value setting up function which a rating value is set [setting up function] up to each analyzed action element, and reproduces each action element.
[0013] in the analysis system of the working state of this invention, an action-element edit

function may include directions and (or) deletion of the unreasonableness in each action element, futility, or unevenness actuation. Moreover, by the analysis system of the working state of this invention, the working state for operation may be alternatively displayed with the rating value set up with each action element and movement analysis data which were edited.
[0014] Furthermore, a playback means to reproduce the animation of the working state for operation changed into the data which photo the management equipment of the working state by this invention, and can be processed by computer, A means to set up the reproduction speed of the above-mentioned animation, and a means in a series of animations which it is going to analyze to select an image part at least and to demarcate an action element, A means to set up the activity of each demarcated action element, and a means to measure and display the time of each demarcated action element of operation, A means to edit the action element based on the analysis result of having carried out movement analysis, about the activity of the selected action element, A means to set up a rating value to each analyzed action element, and to reproduce each action element, A means to memorize the data and the action element which are concerned with progress of the editing operation by the edit means, and a result, It is constituted so that the simulation of a printing means to print the data and the action element which are concerned with progress of the editing operation by the edit means and a result can be carried out on the variable time shaft of a request of a desired working state based on each action element which had, carried out movement analysis, edited and was obtained.
[0015]
[Embodiment of the Invention] With reference to an accompanying drawing, the gestalt of operation of this invention is explained below. The management equipment of the working state by the gestalt of one operation of this invention is roughly shown in drawing 1, and 1 is a video camera which photos the working state for [which should be managed] operation, and can use the thing of the format of arbitration. The image data showing the working state for [which was photoed with the video camera 1] operation is sent to a data converter 2, is changed into the data of a format which can be computer-processed, and is memorized, the storage means 3, for example, the MO disk etc., of a suitable format etc. The changed image data is inputted into a computer 4, and is reproduced by the actuation means 5 on a display 6.
[0016] The computer 4 constitutes the important section of the analysis system of a working state. The function to set up the reproduction speed of a series of animations showing the working state for [which carries out movement analysis of the working state for / which was photoed with the video camera 1 / operation based on a variable time shaft / which was functioned namely, photoed] operation, The function in a series of animations which it is going to analyze to select an image part at least and to demarcate an action element, The function to set up, the classification, i.e., the activity, of each action element, and the function which measures and displays the time of each action element of operation, It is constituted so that it may have the function to edit the action element based on the analysis result of having carried out movement analysis, about the selected action element, and the function to set up a rating value to each analyzed action element, and to reproduce each action element.
[0017] Movement analysis is carried out about each action element in the working state for operation, and relative analysis (for example, analysis of each operator's working state [on a single string activity assigned to two or more operators who can set to a series of routings, and as opposed to each working state or whole of an operator]) of the working state for operation is also included from a viewpoint of management of a working state.
[0018] The actuation means 5 consists of a mouse or a keyboard, and it is constituted so that a

reproduction speed setting up function, an action-element demarcation function, an action-element classification setting up function, the measurement display capabilities of the time of an action element of operation, an action-element edit function, and a rating value setting up function may be operated. that is , it enable it to perform alternatively calculation of the capacity of each action element in the working state for operation of operation , a setup of the operation rate of the request to the candidate for operation , a setup of the playback conditions of data , a cut of useless actuation , a setup of a rating value , etc. , display the image which carried out the capture ring using the actuation means 5 , such as a mouse or a keyboard , on a display 6 . For example, a speed down can be carried out suitably and name registration of an action element can perform the animation displayed on the display 6. Moreover, by controlling suitably the rate of the animation displayed on the display 6, and reproducing suitably (namely, step playback, repetition playback, inversion playback, etc.), unreasonableness, futility, or discovery and removal of unevenness actuation can be performed. In this way, rating is performed after setting up a series of standard operation actuation. For example, by inputting what % it is with the actuation means 5 compared with standard speed, the allowed time over a working state, i.e., operating state, is displayed on a display 6. Based on the set-up rating value which useless actuation cut image data and analytical data on the display 6 by editing operation, and reproduced, reproduced repeatedly and carried out inversion playback, it is reproducible.
[0019] Moreover, block 7 is the storage equipped with a suitable storage like an MO disk, and it enables it to memorize with image data in drawing 1 , the analysis result, i.e., the numeric data, of a working state for operation into which the computer 4 was used and edited [analyzed and]. Block 8 is the printer which can perform printing of an analysis result, image printing of the specified location, and sequential-image printing of each action element.
[0020] Next, movement analysis is explained with reference to drawing 2 . It is for operating it by canceling at the time of 11 canceling, being a carbon button, and making a mistake in and registering the action element in the working state for operation during analysis, or making a mistake in an invalid action in drawing 2 , and registering. 12 is the return carbon button of an animation, and when the animation has gone too far during analysis, it has the function to return an animation to the specified location. 13 is the display column which displays the total time amount of an analysis animation and expresses which side of the whole animation a current location is. 14 is an animation control carbon button which performs start of an animation, halt, and back actuation. 15 is the animation display screen which displays an animation, and can do a movement analysis activity by clicking the inside of a screen using a mouse. At the time of animation analysis, 16 is the animation speed-regulation column which adjusts an animation rate, and can be chosen from 0.03 times in the range to 4 times in the example of illustration. It is the display column which indicates how many times of invalid actions in a current animation location and this current action element 17 had. 18 is the display column which displays the animation element number and action-element name under current movement analysis. 19 is the selection column of the display unit of time amount, and is 1 minute 100 SEC which divides DM and 1 minute divided and displayed 60, and displays it It can switch. 20 is the display column which computes and displays the allowed time from the rating value inputted as the rating value of the present cycle. 21 is the display column which displays each total time amount of an analysis result. 22 is the display column showing the element classification of each action element, and the name of the classification and a setup of a color are possible for it, and it can set up ten kinds of classification in the example of illustration. 23 is an analysis decision carbon button used in case the cycle under movement analysis is decided and it moves to the following

cycle. 24 is the movement analysis result table which displays an analysis result by the tabular format, NO. expresses an action element, 1 cycle enables it to be analyzed to 999 action elements, and an action-element name can be registered in keyboard entry or an alphabetic character pickup input. R is selection of the validity of the rating effectiveness at the time of playback, and an invalid, and when reproducing by the rating playback mode at the time of analysis playback, it performs selection of whether for every action element, from a rating value, playback speed is estimated and it reproduces, or not to carry out. A start time expresses the location of the animation of analysis initiation, an element time expresses the time amount of an action element, i.e., an of operation time + invalid-action time, a time of operation expresses the time amount except an invalid-action time, i.e., the time amount which was actually operating, and an invalid-action time expresses the total time amount at the time of discovering invalid actuation.

[0021] In order to look for an analysis initiation head location first in movement analysis, the PLAY carbon button is clicked, an image is displayed on the animation display screen 15, and it sends to an analysis initiation position. In stopping an animation on the animation display screen 15 in this actuation, it clicks the STOP carbon button, in returning an animation, it clicks the BACK carbon button, and after returning an animation, in advancing again, it clicks the FORWARD carbon button.

[0022] Thus, after deciding an analysis initiation head location, the animation screen on the animation display screen 15 is clicked, and animation analysis is started. The analytic indication is possible also in the state of any working and during a halt, and he is trying to change the color of the display frame of the animation display screen 15 to a light blue. When an animation is stopping, it is indicated by playback. This position is recorded as a start time of action-element NO.1. When the animation has been overlooked during analysis, return playback of the animation is carried out to a start position by clicking to the present element head location of the animation return carbon button 12 to return to an analysis starting position.

[0023] In this way, if it arrives at the position which analysis of an action element completes, by clicking the animation screen on the animation display screen 15 again, the color of the display frame of the animation display screen 15 will change to yellow, and playback of an animation will stop. And even the position at this time is recorded as one action element. 0.5DMs (0.3SEC) can be analyzed [time amount / analysis] by min about one action element. In this way, registration of an action-element name is made by the action element which analysis ended clicking the action element of the movement analysis result table 24, displaying cursor, and keying an element name. In this case, as an action element is clicked and an alphabetic character pickup screen is displayed, an action-element name can also be recorded how using a mouse.

[0024] Next, selection actuation of the validity of the rating effectiveness and an invalid is performed to the action element which carried out movement analysis. Thereby, if it reproduces by the rating playback mode at the time of playback of an analysis result, an animation will be reproduced at the rate computed from the set-up rating value and the selected reproduction speed. In this case, what is necessary is to choose the validity of this calculation, and an invalid for every action element, not to compute this rate and just to choose an invalid in that case with the animation element of constant speed.

[0025] A setup of the classification of an action element is performed by choosing the action-element classification number which corresponds in the element classification display column 22 of an action element, or clicking and inputting a classification name.

[0026] By clicking the animation screen on the animation display screen 15, analysis of the

following action element can be started and analysis of action-element NO.2 is started. An analysis initiation position can be looked for by clicking the PLAY carbon button in the case of a scene without the need of analyzing. In this case, it can return to the first location by clicking a carbon button to the definitive element termination location of the animation return carbon button 12.

[0027] When invalid actuation is discovered during movement analysis, by right-clicking the animation screen on the animation display screen 15, playback stops, the color of the display frame of the animation display screen 15 turns into red, and measurement of an invalid time can be started. Clicking left-clicking the animation screen on the animation display screen 15 or the PLAY carbon button begins more, and measurement of an invalid action can be terminated by clicking the animation screen on the animation display screen 15 by one of right and left. In this case, the animation on the animation display screen 15 does not stop, but the color of the display frame of the animation display screen 15 changes to a light blue, and returns to the usual analysis. In this way, in measurement of an invalid action, time amount after clicking the animation screen on the animation display screen 15 until it clicks again is measured as an invalid time. Moreover, the count of the invalid actuation which can set this action element is displayed on the display column 17.

[0028] When there is no invalid actuation during movement analysis activation, an animation screen can be returned to the start time position of an action element by clicking a carbon button to the present element head location of the animation return carbon button 12. On the other hand, when invalid actuation is during movement analysis activation, an animation screen can be returned to the termination position of the invalid last actuation by clicking a carbon button to the invalid termination location of the animation return carbon button 12. Moreover, when an action element is deleted by a failure etc., it can perform by canceling and clicking a carbon button 11. When all the action elements of a cycle that are performing current movement analysis when all the action elements are canceled are deleted and cancellation of the last action element is performed, only the action element of the last of the cycle under analysis is deleted, and an animation returns to the termination time position of one action element. Moreover, also when invalid actuation of the action element under analysis is deleted by a failure etc., it can perform by canceling and clicking a carbon button 11. That is, when all invalid actuation that is performing current movement analysis when all invalid actuation is canceled is deleted and cancellation of the invalid last actuation is performed, only invalid actuation of the last of the action element under analysis is deleted.

[0029] By a setup of a rating value clicking the rating value input column, and displaying cursor, for example, keying by 50 - 200% of within the limits, a total time of operation and the standard time computed from the rating value are displayed, and this rating value can be changed also in the time of analysis playback.

[0030] When moving to the following cycle, it performs by clicking the analysis decision carbon button 23 and deciding analysis of a current cycle.

[0031] Next, drawing 3 reference is carried out and playback actuation of an analysis result is explained. In drawing 3 , 31 is the playback mode-of-operation selection column which chooses the playback mode of operation of an analysis result. 32 is the animation display position jump column which sets a playback animation to the appointed positions, such as a head and last. 33 is the total time amount display column which displays the total time amount of a playback animation and expresses which side of the whole animation a current location is. 34 is an animation control carbon button which performs start of an animation, halt, and back actuation.

35 is the animation display screen which displays an animation, and can do a movement analysis activity by clicking the inside of a screen using a mouse. 36 is the reset section of the position display which can display the start location of an action element on display as a position value 0, or can display the position from the head position of an animation. It is the display column of the current animation location which indicates how many times of invalid actions in a current animation location and this current action element 37 had. 38 is the display column which displays the animation element number and action-element name under current playback. 39 is the animation size selection column which chooses animation size. 40 is the time column which changes the position display of the display column 37 of a current animation location so that the current position can be displayed as a start location 0 of each action element. 41 is the image printing column which makes a printer 8 (drawing 1) print the present position image and the sequential image at the time of repeat playback. 42 is a chart example and the classification total column made to print about the total result in the classification set as each action element. 43 is 1 minute 100 SEC which divides DM and 1 minute divided and displayed 60, and displays it It is the unit-selection column of the measurement time amount which can be switched. 44 is an animation reproduction speed controller, and the animation rate of a playback animation is adjusted, and selection of the reproduction speed at the time of rating playback is performed, for example, it can perform rate accommodation in the range of 0.03 times as many - [as this] 3X and 50 - 200 %. 45 is the rating value input column which computes and displays an allowed time from the rating value inputted as the rating value of the present cycle. 46 is the total time amount display column which displays each total time amount of an analysis result. 47 is a movement analysis result table which displays the list of the time amount about the analyzed action element etc. 48 is the cycle change column which switches the cycle to reproduce with the following carbon button a front. 49 is the classification chart of the action element which can set ten kinds of element classification as each action element by the name and the color.

[0032] By clicking NORMAL of the playback mode-of-operation selection column 31 about the playback mode to an analysis result, the Normal playback, all event playback, invalid-action cut playback, and rating value playback can be chosen, in the Normal playback, playback is performed simply, and the display frame of the animation display screen 35 becomes white in the example of illustration, and reproduction speed can be adjusted in the 3 times [0.03 times to] as many range as this by the animation reproduction speed controller 44. In all event playback, it is reproduced as analyzed, and it is yellow, and at the time of a working position, the display frame of the beginning of the animation display screen 35 becomes light-blue, and, in in an invalid action, serves as red. In the case of this playback mode, reproduction speed can be adjusted in the 1.0 times [0.03 times to] as many range as this by the animation reproduction speed controller 44. Moreover, in invalid-action cut playback, the scene besides an invalid action and measurement is omitted, and becomes green [the display frame of the animation display screen 35], and the reproduction speed in this case can be adjusted in the 3 times [0.03 times to] as many range as this by the animation reproduction speed controller 44. Furthermore, in rating value playback, only when the rating value is set up, it is reproduced within the limits of the selected reproduction speed, and at the time of playback, the scene besides an invalid action and measurement is omitted, and the display frame of the animation display screen 35 serves as orange. The reproduction speed in this case serves as 50% - 200% of range.

[0033] Moreover, when only the action element by which current selection is made is reproduced about the playback to an analysis result when it is continuously reproduced to the last action element and Step is clicked by clicking All of the playback mode-of-operation selection column

31, and Repeat is clicked, the scene in range assignment is reproduced repeatedly.
[0034] Thus, the managerial system of the working state by constituted this invention may be used as follows, for example. When two or more operators are doing a series of same activities (it consists of two or more action elements), each action element of each operator can be analyzed, what was most excellent in each action element can be chosen and connected, the simulation of the working state of the ideal to a series of activities can be carried out, and it can be made useful to education and instruction of each operator. Thereby, an improvement of working capacity and the increase in efficiency of an activity can be attained.
[0035] moreover, the image and (or) data which can compare a specific operator's working state with other operators' working state can be created, and it can be made like pointing out a trouble like lack of the useless motion on an activity and concentration to the specific operator, and urging improvement efforts.
[0036] Furthermore, the image of the operating state of the activity being done in each remote place is brought together in one place, and the managerial system of the working state by this invention performs actuation and analysis of time amount, and it can consider as the criteria of service evaluation of an operator, or an analysis result can be fed back to each work shop, and it can use for an improvement of the method of an activity, or improvement in an operator's work performance.
[0037]
[Effect of the Invention] In the analytical method of the working state according to this invention as explained above Reproducing a series of animations showing the working state for [which was photoed] operation with the adjustable reproduction speed within the limits which were able to be decided beforehand Choose the range of the image part which is going to analyze the animation currently reproduced, register the selected animation part as an action element on a series of animations, and while carrying out movement analysis of each registered action element and obtaining movement analysis data Edit each action element on a time-axis, and with each action element and movement analysis data which were edited Since it constitutes so that the working state for operation may be alternatively displayed based on a variable time shaft Actuation and time amount analysis can be performed very much now in a short time, and a setup of the exact allowed time in the working state for operation and a setup of standard actuation can be performed now simply and easily. Therefore, by enforcing this approach, according to this invention, the working state for operation can be managed efficiently and large laborsaving and time amount compaction will be brought about. Moreover, since the actuation which edited with actuation with a non-edited basis and was corrected can be displayed on the operator for operation free by the animation and time amount display according to the management equipment of the working state by this invention, the education and training of activity actuation can be carried out efficiently. Moreover, correction and a setup of the allowed time at the time of the harmony (for example, the operating speed of a machine or a tool or rationalization of arrangement of an operator) with an operator, and a machine and a tool and installation of a new facility and standard actuation can be easily done now.

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2.**** shows the word which can not be translated.
3.In the drawings, any words are not translated.

DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]
[Drawing 1] The block diagram showing roughly the management equipment of the working state by the gestalt of one operation of this invention.
[Drawing 2] The explanatory view of the movement analysis by the analysis system of the working state of this invention.
[Drawing 3] The explanatory view which illustrates playback of the analysis result by the analysis system of the working state of this invention.
[Description of Notations]
1: Video camera
2: Data converter
3: Storage means
4: Computer
5: Actuation means
6: Display
7: Storage
8: Printer

[Translation done.]

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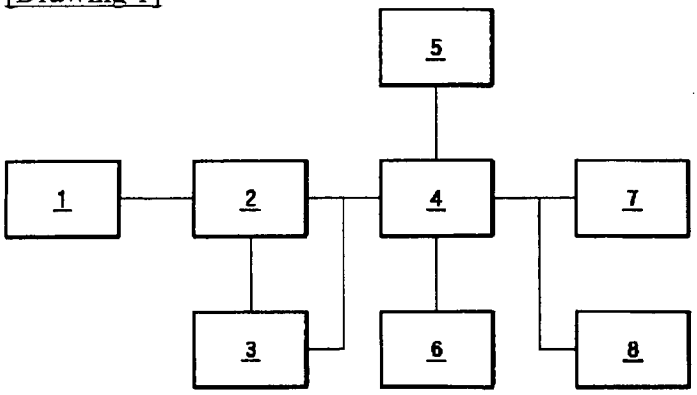
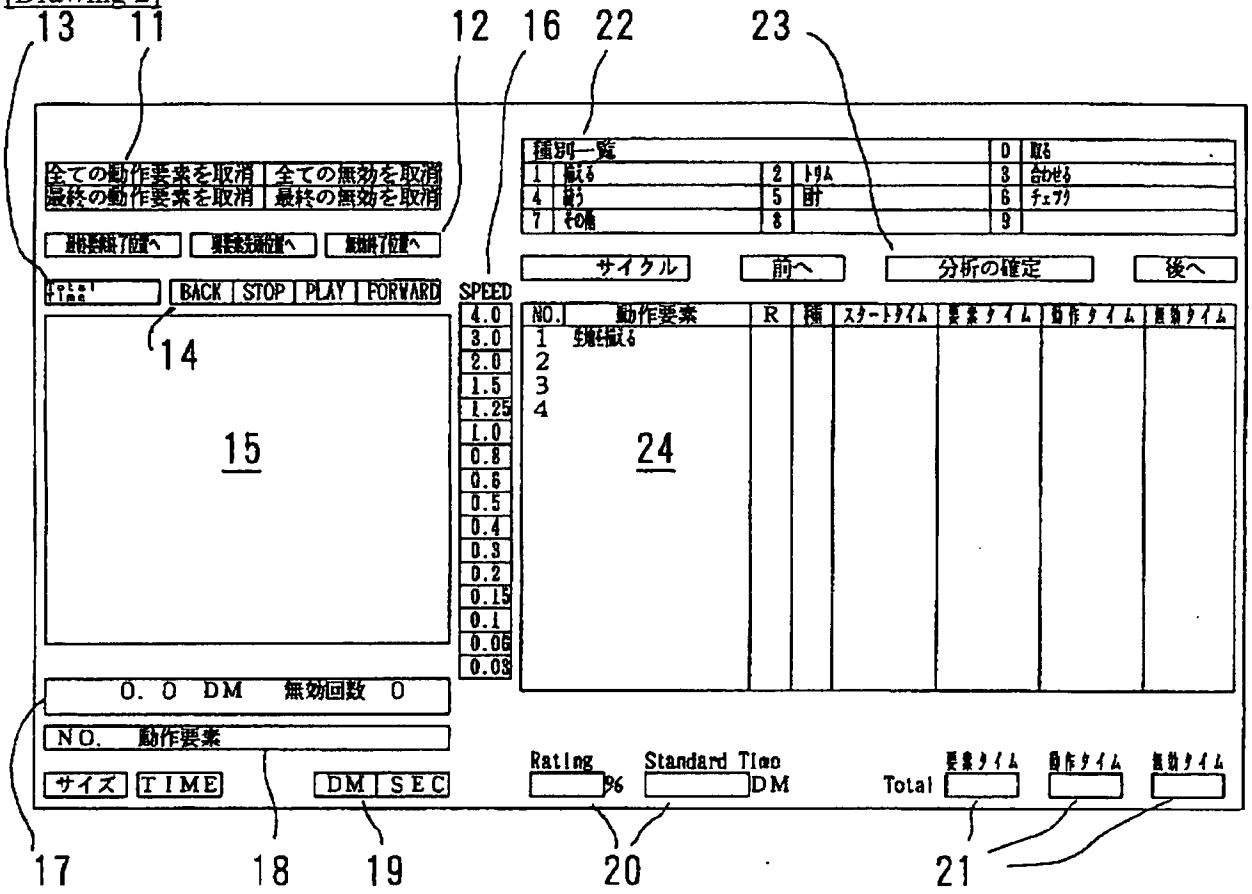
2.**** shows the word which can not be translated.
3.In the drawings, any words are not translated.

DRAWINGS

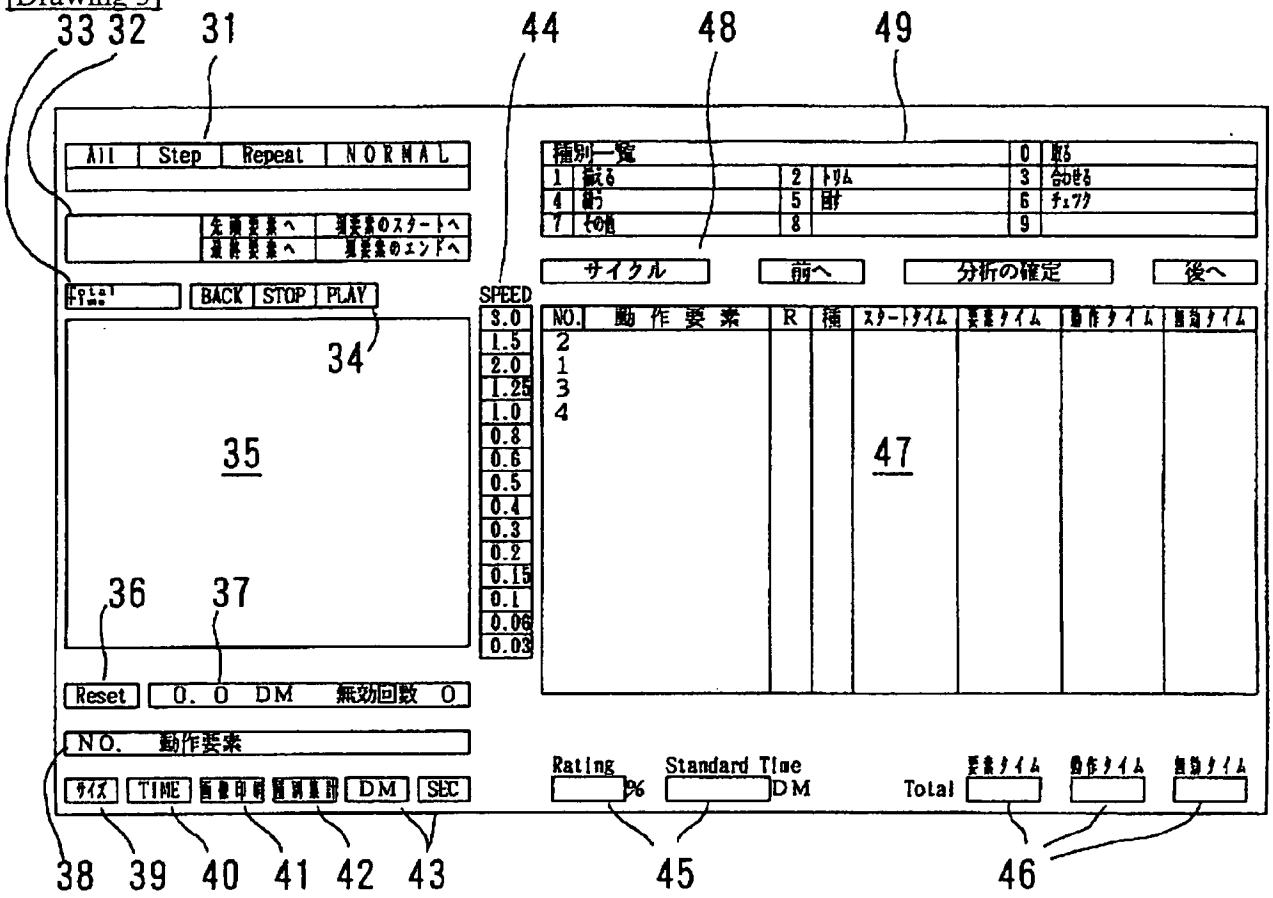
[Drawing 1]



[Drawing 2]



[Drawing 3]



[Translation done.]